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Slawinski

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(54) **BIDET SYSTEM AND METHODS THEREFOR**

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(65) **Prior Publication Data**

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E03D 9/08 (2006.01)

(52) **U.S. Cl.**
CPC . ***E03D 9/08*** (2013.01); *Y10T 29/494* (2015.01)

(58) **Field of Classification Search**
CPC E03D 9/08; E03D 9/085
USPC 4/420.1, 420.2, 420.4
See application file for complete search history.

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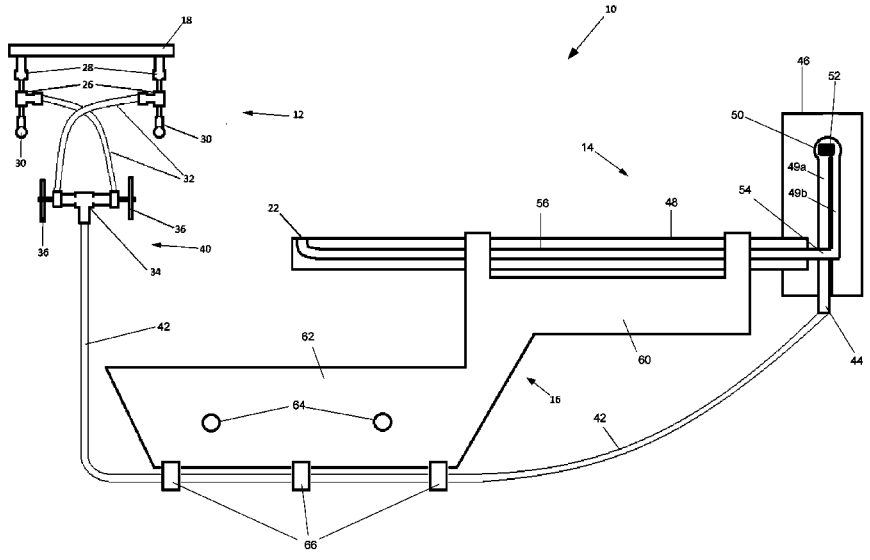
(57) **ABSTRACT**

A bidet system comprising an adaptor assembly, handle assembly, and attachment assembly. The adaptor assembly is adapted to be connected to a water system or other suitable liquid supply, and delivers liquid to the bidet system. The handle assembly allows a user to manipulate the flow and pressure of liquid to a discharge nozzle of the handle system. The attachment assembly is adapted to fix the handle assembly to a toilet.

12 Claims, 4 Drawing Sheets



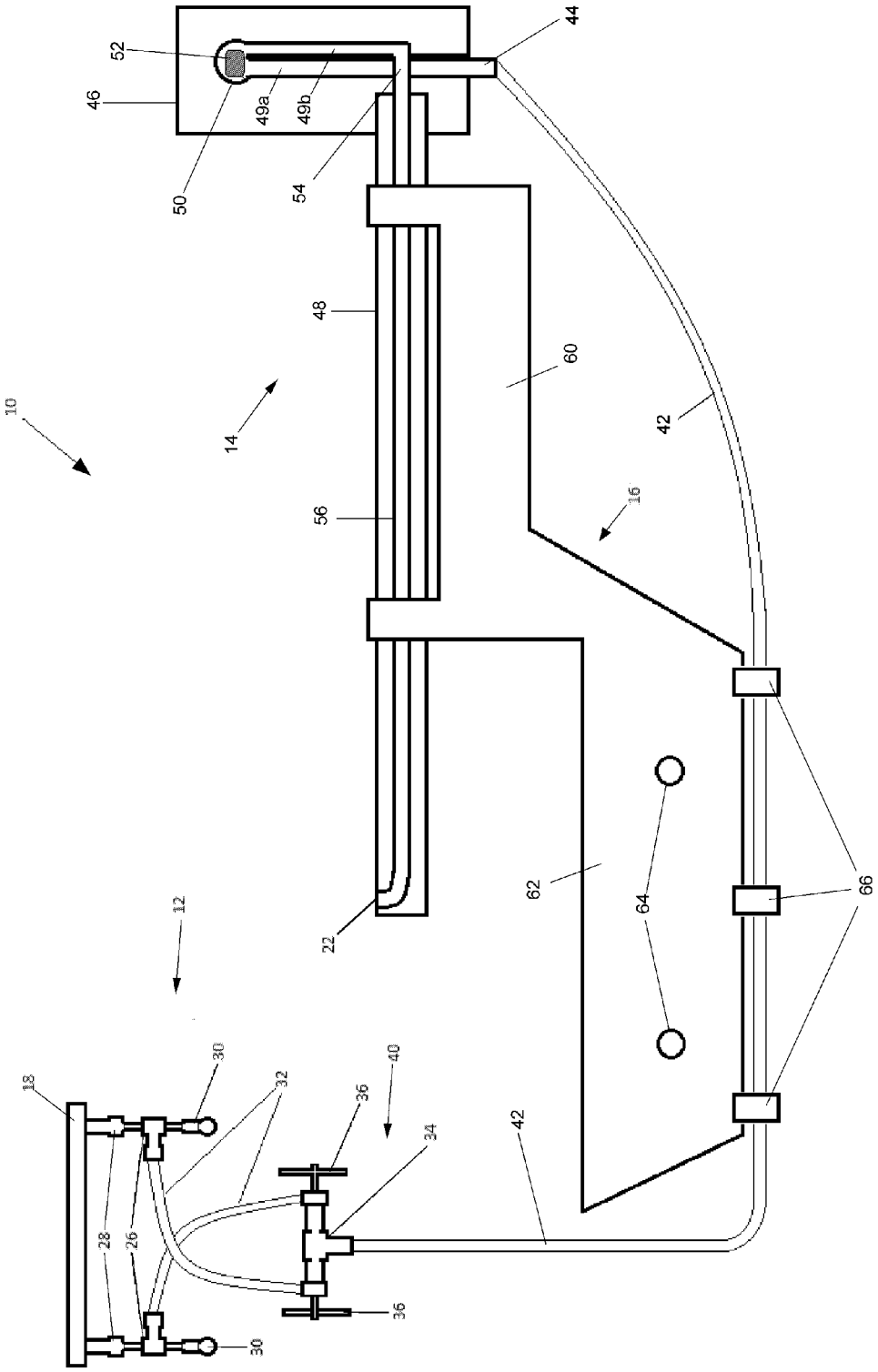

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FIG. 1

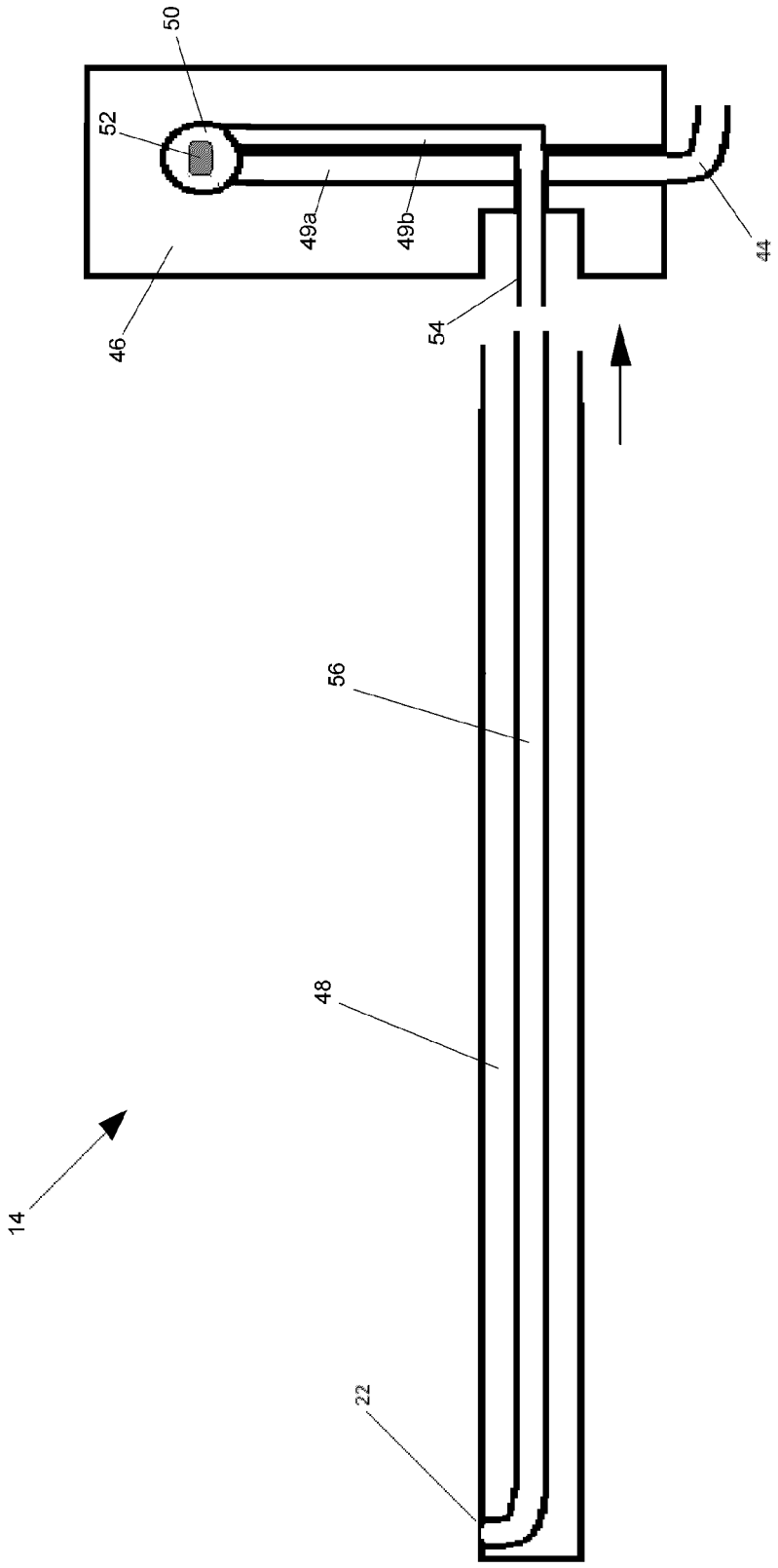
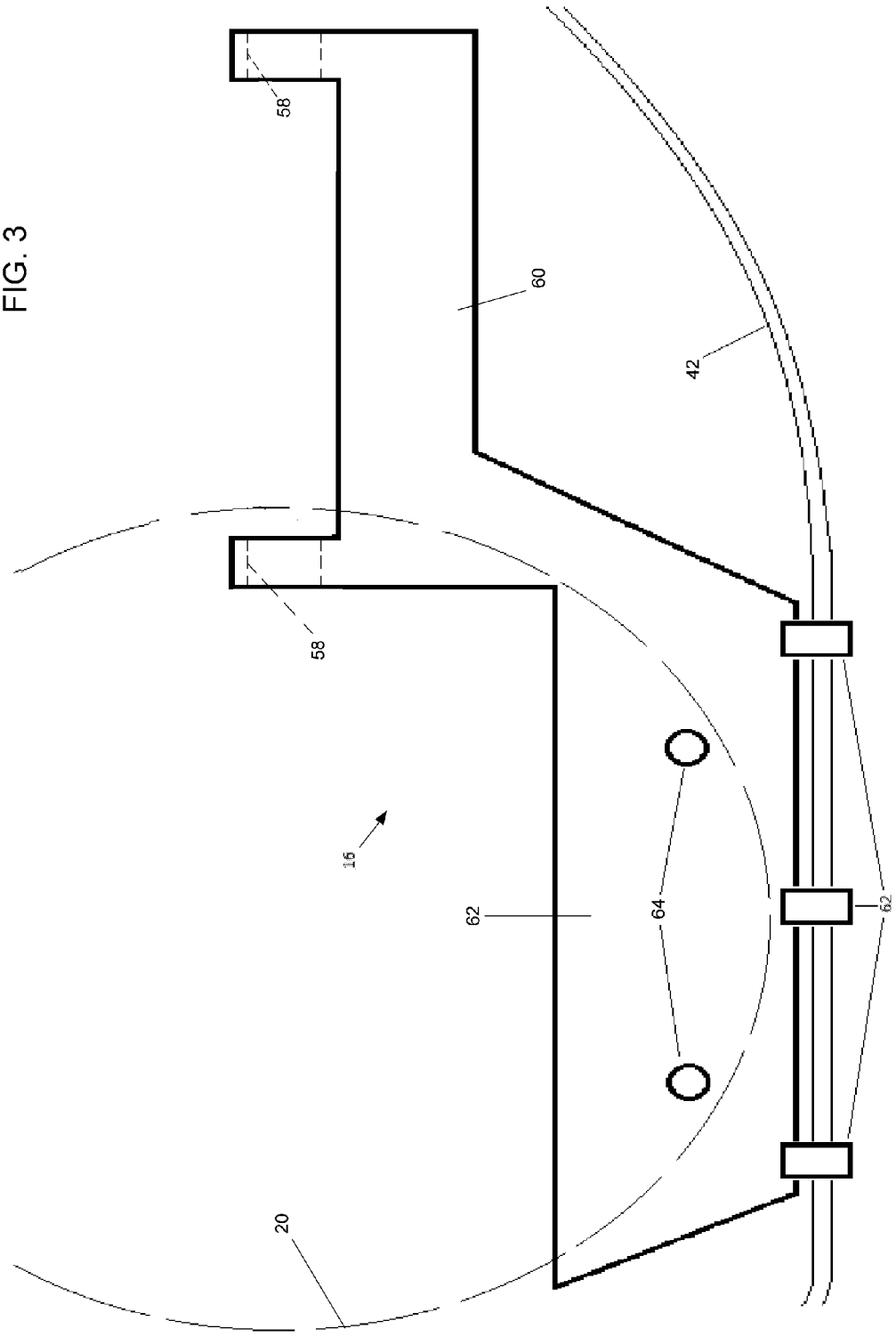


FIG. 2

FIG. 3



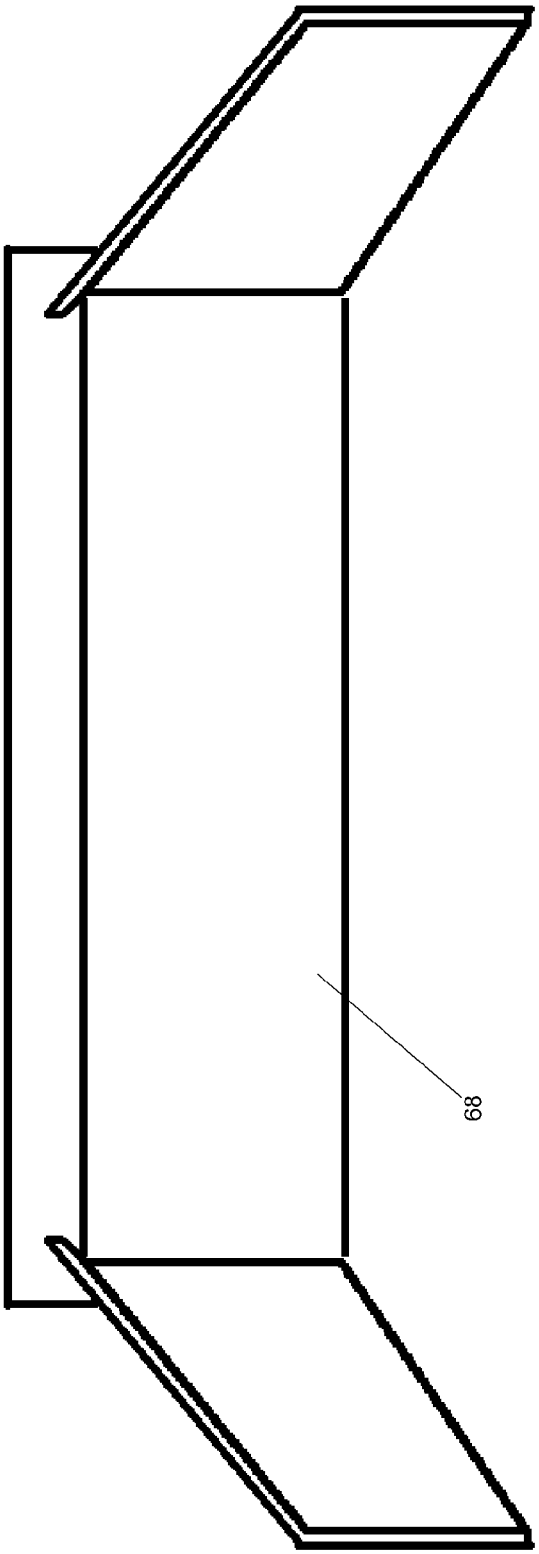


FIG. 4

BIDET SYSTEM AND METHODS THEREFOR

This application claims the benefit of U.S. Provisional Application No. 61/571,432, filed Jun. 28, 2011, the contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

The present invention generally relates to bidets, water closets and toilet systems. More particularly, this invention relates a bidet system adapted to be installed and used in combination with a toilet.

BRIEF DESCRIPTION OF THE INVENTION

The present invention provides a bidet system for installation and use with a toilet and a sink system.

According to a first aspect of the invention, the bidet system includes an adaptor assembly adapted to be fluidically connected to a liquid supply, a handle assembly fluidically coupled to the adapter assembly, and an attachment assembly adapted to mount the handle assembly to a toilet bowl. The handle assembly includes a device for controlling flow of a liquid delivered by the adaptor assembly to the handle assembly, a nozzle for discharging the liquid from the handle assembly, and a handle adapted to maneuver the nozzle. The attachment assembly is adapted to enable the nozzle of the handle assembly to be maneuvered within the toilet bowl. Additional aspects of the invention include methods of installing and using the bidet system.

A technical effect of the invention is the ability to adapt an otherwise conventional toilet to have at least some of the functionality of a bidet, and the ability to provide such a capability with a system that is relatively easy to install and operate.

Other aspects and advantages of this invention will be better appreciated from the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** schematically represents a top view of a bidet system comprising an adaptor assembly, handle assembly, and attachment piece in accordance with an embodiment of the invention.

FIG. **2** schematically represents a top view of the handle assembly of FIG. **1**.

FIG. **3** schematically represents a top view of the attachment piece of FIG. **1**.

FIG. **4** schematically represents a top view of a bumper as an optional additional attachment to the bidet system of FIG. **1**.

DETAILED DESCRIPTION OF THE INVENTION

FIGS. **1** through **4** represent preferred aspects of a bidet system **10** of the present invention. The bidet system **10** is represented as comprising an adaptor assembly **12**, a handle assembly **14**, and an attachment assembly **16**. The adaptor assembly **12** is adapted to be connected to a supply of any suitable type of cleansing liquid, for example, the plumbing of a faucet system **18** underneath a bathroom sink, and transports water from the faucet system **18** to the bidet system **10**. The adaptor assembly **12** connects to the handle assembly **14** so that water from the faucet system **18** is able to flow through the handle assembly **14** to a bidet nozzle **22**, where the water is discharged within a toilet bowl **20** (FIG. **3**). In addition, the handle assembly **14** is operable by a user to control the position and orientation of the nozzle **22** within the bowl **20**, as well as the pressure and direction of water flow from the nozzle **22**. The attachment piece **16** fixes the handle assembly **14** to the toilet bowl **20**.

The adaptor assembly **12** is represented as comprising at least two adapters **26** inserted between shut off valves **28** and sink faucet connectors **30**. By this method, the adaptor assembly **12** is able to make use of both hot and cold water from the faucet system **18**. Tubing **32**, such as polyethylene, connects the two adapters **26** to a tee pipe **34** by way of needle valves **36**. The needle valves **36** provide a means for adjusting the pressure and temperature of water delivered from the faucet system **18** to the nozzle **22**. The needle valves **36** and tee pipe **34** are hereafter referred to as a mixing assembly **40**. It is foreseeable that other means could be employed to mix hot and cold water from a plumbing system, including devices having an automatic capability that allows the temperature of the mixed water to be set and controlled, and such alternatives are within the scope of the invention.

The mixing assembly **40** is connected to the handle assembly **14** through another tube **42**, shown as being directly connected to the handle assembly **14** in the embodiment of FIG. **1**. The tube **42** is shown connected to the handle assembly **14** through an elbow connection **44** at one end of a handle **46** of the handle assembly **14**. The elbow connection **44** is preferably on the same end of the handle **46** as the connection to a pipe **48** that is coupled to the handle **46** with a connector **54**. The nozzle **22** is located at an end of the pipe **48** distal to the handle assembly **14**.

The handle assembly **14** generally includes not only the handle **46**, which may be formed, for example, of acrylic or other suitable composition, but also the pipe **48** coupled thereto by a connector **54**. The pipe **48** may be formed of various materials, including PVC. The handle assembly **14** further includes a suitable valve means **50** capable of selectively allowing water flow from a passage **49***a* within the handle **46** connected to the tube **42** to a second passage **49***b* within the handle **46** that is connected to the pipe **48** via its connector **54**. For this purpose, a button **52** is shown on the handle **46** by which a user can operate the valve means **50**. The valve means **50** is preferably self-closing and, when pressed, allows water to pass through the handle **46** to the pipe **48**. The pressure of the water is preferably controllable by adjusting the degree to which the button **52** is pressed. While a mechanical valve is suitable as the valve means **50**, other methods for achieving this operating action could be used.

The connector **54** securing the pipe **48** to the handle **46** allows water to flow into a tubing **56** within the pipe **48**, which delivers the water to the nozzle **22** at the end of the pipe **48** opposite the handle **46**. The water is preferably discharged from the nozzle **22** as a single stream, though the invention is not limited in this regard. The nozzle **22** preferably does not protrude from the pipe **48** and the length of the tubing **56** is preferably entirely within the pipe **48**, such that the intrusion of the bidet system **10** into the toilet bowl **20** is predominantly if not entirely the result of the outer profile of the pipe **48**. The pipe **48** and handle **46** are preferably fixed to each other by the connector **54** (optionally any suitable alternative or additional means), such that one does not move relative to the other. As such, the user can manipulate the orientation of the pipe **48**, and therefore the orientation of the nozzle **22** and its stream of water, by operating the handle **46**.

In the embodiment represented in the figures, the handle assembly **14** is attached to the toilet bowl **20** by the manner in which the pipe **48** is coupled to the attachment piece **16**. The handle assembly **14** is coupled to the attachment piece **16** by sliding the pipe **48** through holes **58** formed in a hinge mem-

ber **60** of the attachment piece **16**. The holes **58** define a pivot axis for the handle assembly **14**. In this way, the handle assembly **14** is supported by the attachment piece **16**, but is free to rotate about its pivot axis. In addition, the handle assembly **14** is also preferably capable of axial movement along its pivot axis, which in turn provides considerably maneuverability of the nozzle **22** within the toilet bowl **20**. The holes **58** may be sized or provided with bushings (not shown) or other suitable means capable of providing a certain amount of friction or interaction with the pipe **48** to provide stability and resistance to movement.

The attachment piece **16** further comprises a rear spacer **62**. The hinge member **60** and rear spacer **62** may be one solid piece or assembled, but are preferably fixed relative to each other. The rear spacer **62** is represented as having two holes **64** by which the entire attachment piece **16** and the handle assembly **14** coupled thereto can be secured to the toilet bowl **20**, for example, between the bowl **20** and a toilet seat (not shown). The holes **64** can be sized and located to allow bolts (not shown) that secure a toilet seat to the bowl **20** to also be used to secure the attachment piece **16** to the bowl **20**. The holes **64** may be spaced and sized for certain toilet models, though it is also possible that the size and spacing of the holes **64** could be adaptable for installation on a range of toilet configurations.

FIGS. **1** and **3** further show clamps **66** located on the rear edge of the rear spacer **62** to permit securement of the tubing **42** to the rear spacer **62**, thereby providing further convenience and containment of the entire system **10**. However, fixing the tube **42** to the rear spacer **62** is optional and not necessary for the operation of the system **10**.

Because the rear spacer **62** tends to raise the toilet seat relative to the bowl **20**, it may be desirable or necessary to provide a means for keeping the toilet seat level or to prevent toilet water from splashing out of the toilet bowl **20** between the bowl **20** and toilet seat. For this purpose, FIG. **4** represents a bumper shield **68** suitable for being secured, for example, with tape or other adhesive means, between the toilet bowl **20** and toilet seat at the front of the toilet bowl **20**.

While the invention has been shown and described in terms of a specific embodiment, it is apparent that other forms could be adopted by one skilled in the art. For example, the physical configuration of the billet system **10** could differ from that schematically represented in the figures, and materials and processes other than those noted could be used. Therefore, the scope of the invention is to be limited only by the following claims.

The invention claimed is:

1. A bidet system comprising:

an adaptor assembly adapted to be fluidically connected to a liquid supply;

a handle assembly fluidically coupled to the adapter assembly, the handle assembly comprising means for controlling flow of a liquid delivered by the adaptor assembly to the handle assembly, a nozzle for discharging the liquid from the handle assembly, and a handle adapted to maneuver the nozzle; and

an attachment assembly adapted to mount the handle assembly to a toilet bowl and enable the nozzle of the handle assembly to be selectively axially and rotatably maneuvered about a horizontal axis within the toilet bowl with the handle.

2. The bidet system according to claim **1**, wherein the adaptor assembly comprises:

means for connecting to and drawing water from a sink water system; and

means for transporting water from the sink water system to the handle assembly.

3. The bidet system according to claim **1**, wherein the handle assembly comprises a pipe rotatably coupled to the attachment assembly, and the nozzle is disposed at a distal end of the pipe relative to the handle.

4. The bidet system according to claim **3**, wherein the nozzle does not protrude from the pipe.

5. The bidet system according to claim **3**, wherein the pipe of the handle assembly is axially movable relative to the attachment assembly.

6. The bidet system according to claim **3**, wherein the attachment assembly includes holes formed in a hinge member thereof, the pipe is located within the holes, the holes define a pivot axis and the pipe is free to rotate about the pivot axis.

7. The bidet system according to claim **6**, wherein the pipe is axially movable along the pivot axis.

8. The bidet system according to claim **1**, wherein the controlling means of the handle assembly is operable to selectively enable flow of the liquid through the handle.

9. The bidet system according to claim **1**, wherein the attachment assembly comprises:

means for fixing the attachment assembly to a toilet between bowl and seat thereof; and

means for mounting the handle assembly thereto and enabling the handle assembly to be moved axially and rotatably by operating the handle.

10. A method of installing the bidet system of claim **1** on a toilet, the method comprising:

fluidically connecting the adaptor assembly to hot and cold water supplies;

mounting the attachment assembly to the toilet so that the nozzle of the handle assembly is disposed within a bowl of the toilet; and

fluidically connecting the handle assembly to the adaptor assembly for delivering a mixture of hot and cold water to the nozzle of the handle assembly.

11. A method of using the bidet system of claim **1**, the method comprising:

manipulating the handle of the handle assembly to maneuver the nozzle within a toilet bowl of a toilet; and

operating the controlling means to deliver a mixture of hot and cold water to the nozzle of the handle assembly and discharge the mixture from the nozzle into the toilet bowl.

12. The bidet system according to claim **1**, wherein the handle assembly is operable to selectively control the pressure and direction of water flow from the nozzle.

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